WHAT IS CLAIMED IS:

1. A substantially purified immunoglobulin polypeptide that specifically binds to a human type beta platelet-derived growth factor receptor (βPDGF-R), wherein binding of the polypeptide has one or more of the following effects:

i) inhibition of PDGF BB or AB binding to the βPDGF-R;

ii) inhibition of PDGF-induced βPDGF-R phosphorylation;

iii) inhibition of PDGF-induced dimerization of βPDGF-R;

iv) inhibition of PDGF-induced mitogenesis of cells displaying human βPDGF-R; and

v) inhibition of PDGF-induced chemotaxis and migration of cells displaying βPDGF-R.

2. An immunoglobulin polypeptide of claim 1, wherein the polypeptide is a monoclonal antibody.

3. An immunoglobulin polypeptide of claim 2, wherein the monoclonal antibody is antibody 2A1E2.

4. A substantially purified polypeptide having an amino acid sequence substantially identical to a sequence of a complementarity determining region of an immunoglobulin polypeptide of claim 1.

5. An immunoglobulin polypeptide of claim 1, wherein the polypeptide is linked to a detectable label.

6. An immunoglobulin polypeptide of claim 1, wherein the polypeptide is chimeric.

7. A substantially purified immunoglobulin polypeptide that specifically recognizes an epitope which lies

in the second Ig-like domain in the extracellular region of the βPDGF-R.

8. A composition comprising a monoclonal antibody or binding fragment thereof that binds to the human βPDGF-R, which antibody or fragment inhibits in vivo binding of PDGF BB or AB to the receptor.

9. An isolated nucleic acid having a sequence substantially identical to a nucleic acid coding for an immunoglobulin polypeptide or a binding fragment thereof, wherein binding of the polypeptide or fragment to a human βPDGF-R has one or more of the following effects:

i) inhibition of PDGF BB or AB binding to the βPDGF-R;

ii) inhibition of PDGF-induced βPDGF-R phosphorylation;

iii) inhibition of PDGF-induced dimerization of βPDGF-R;

iv) inhibition of PDGF-induced mitogenesis of cells displaying the human βPDGF-R; and

v) inhibition of PDGF-induced chemotaxis and migration of cells displaying βPDGR-R.

10. A nucleic acid of claim 9, wherein the nucleic acid is operably linked to a promoter.

11. A nucleic acid of claim 10, wherein the promoter and the nucleic acid are contained in an expression vector.

12. A cell line transfected, transformed, or infected with a nucleic acid of claim 9.

13. A method of producing a substantially purified immunoglobulin polypeptide, or binding fragment thereof, which binds to a human type beta PDGF receptor (βPDGF-R), wherein the binding of the polypeptide or fragment to the βPDGF-R has one

or more of the following effects: inhibition of PDGF BB or AB binding to the βPDGF-R; inhibition of PDGF-induced βPDGF-R phosphorylation; inhibition of PDGF-induced dimerization of the βPDGF-R; and inhibition of PDGF-induced mitogenesis of cells displaying human βPDGF-R; and inhibition of PDGF-induced chemotaxis and migration of cells displaying human β-PDGF; the method comprising:

i) growing a cell line comprising a nucleic acid encoding the immunoglobulin polypeptide; and

ii) harvesting the immunoglobulin polypeptide.

14. A method of claim 13, wherein the cell line is a hybridoma.

15. A method of claim 14, wherein the hybridoma is ATCC no. HB10938.

16. A method of claim 13, wherein the immunoglobulin polypeptide is a monoclonal antibody.

17. A method of treating a human having a PDGF-mediated disease involving proliferation, migration or chemotaxis of smooth muscle cells, comprising administering to the patient a therapeutically effective dose of at least one immunoglobulin polypeptide according to claim 1, or fragments of the immunoglobulin polypeptide, and a pharmaceutically acceptable carrier.

18. An isolated cell line designated as ATCC no. HB10938.